



January 5, 2016

Greg Oberndorf
26496 Deb Lane
Parma, ID 83660

Re: Lonesome Lake Dam (L-15) – Inspection Summary

I inspected Lonesome Lake Dam on August 25, 2015, with Keith Mills, the State Engineer. The Water Resources Department conducts routine inspections of the dam's exterior surfaces to identify conditions that might affect the safety of the dam. Dams are assigned a hazard rating based on downstream hazard to people and property, not on the condition of the dam. Lonesome Lake Dam has a high hazard classification. High hazard dams are inspected annually.

Summary: The dam is fair condition. Due to excessive vegetative growth and accumulated debris restricting flow at the pipe inlet, the spillway continues to be the main concern at the dam. To prevent overtopping, which could lead to dam failure, the spillway must be maintained to flow at full capacity. We have observed no evidence of valve operation over about the last five years. Additionally, the valve outlet still appears to be completely covered with soil and debris. The low level conduit must be functional to lower the reservoir, as needed, for maintenance or an emergency.

Results of Inspection:



Dam upstream side, from right abutment. Note vegetation.

During the inspection, the reservoir was about 2 feet below the dam crest. Excessive vegetation along the shoreline hindered inspection of the dam's upstream side. Since the previous inspection, a screen was placed at the inlet to the spillway pipe, located on the upstream side of the dam near the right abutment. However, excessive vegetation and an accumulation of floating vegetation were observed on the screen. These conditions significantly restrict inflow to the spillway pipe. The spillway approach channel and inlet screen must be kept free of vegetative growth and debris.



Spillway pipe inlet. Note screen, vegetation, and debris.

The top end of the operator stem for the low level outlet conduit is located on the upstream side of the dam. We could not inspect the low level conduit outlet, because it is buried under loose fill under dense vegetation. Based on the condition of operator stem and soil and rock covering the outlet, it appeared that the low level outlet valve had not been operated recently. The low level conduit and valve must be maintained so it is able to lower the reservoir, as needed, for maintenance or an emergency.



Operator stem for low level outlet valve.



Dam crest viewed from left abutment.

No sign of settlement or cracking was observed on the dam crest. The dam crest is wide and clear of trees and brush to the shoulders. Past inspection reports state that vegetation was removed from the crest a few years ago. A few trees remain on the upstream shoulder. Excessive trees and brush were observed along the downstream toe.



Dam downstream slope and toe, crest in foreground.

In addition to hindering inspection and access, trees and woody vegetation can have roots that penetrate deep into the dam. When the vegetation dies, roots decay and leave seepage paths in the dam, especially if there are burrowing animals. Also, taller trees are prone to blowing over, which can also compromise the dam integrity.

Drawings for Water Rights

In addition to this routine inspection, we also received information for completion of the water rights process, including one drawing from Dave Shaw of ERO Resources, a consultant working for you. We will need the as-builts to include the actual dimensions of the dam itself, including crest width, slope steepness, and conduit and spillway dimensions, as described in Oregon Administrative Rule 690-020-0080(5). The engineer is not required to certify the parts of the dam that are unseen, but will need to observe that the conduit can be operated properly, and document this in the final letter along with as-built drawings. These must have the stamp of a Professional Engineer registered in Oregon.

Recommendations:

1. Clear vegetation and debris from the spillway approach channel and pipe inlet screen, as needed to maintain full flow capacity. If this action is not sufficient to maintain full flow capacity, it may be necessary to construct an intake structure with a trash rack.
2. Clear soil and debris from the low level conduit outlet. It may be possible to do this by opening the valve. If the valve has not been operated recently, we recommend that you open it in the fall, when your need for water is lower, in case it requires repairs.
3. Remove vegetation from the dam upstream side and downstream toe.
4. Have an engineer submit final documentation so the water right process can move forward.

We use a standard inspection form, and a copy of the field inspection sheet for this dam is attached. Another routine inspection is planned for next year. Please let me know if you have any questions about this inspection.

Sincerely,



Gerald Pierce, P.E.
Civil Engineer
(503) 986-0839

C: Ron Jacobs, Watermaster District 9
Dam Safety File L-15

| | | | |
|--------------------|---|-----------|---------------|
| IV. Conduit | Control: <input type="checkbox"/> Manual <input type="checkbox"/> Power <input type="checkbox"/> Other <input type="checkbox"/> Conduit Control missing | | Rating |
| Inlet | <input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Debris on Trash Rack <input type="checkbox"/> Deterioration | | |
| Trickle tube | <input type="checkbox"/> None <input type="checkbox"/> Screened <input type="checkbox"/> Blockage <input type="checkbox"/> Deterioration | | |
| Control/Stem | <input type="checkbox"/> Operable <input type="checkbox"/> Damaged <input type="checkbox"/> Missing no wheel | | 4 |
| Valve(s) cycling | <input type="checkbox"/> Frozen <input checked="" type="checkbox"/> unknown <input type="checkbox"/> past year <input type="checkbox"/> frequent | | 2 |
| Size: buried | Material | Condition | 2 |
| Outlet Structure | <input checked="" type="checkbox"/> Overgrown <input type="checkbox"/> Clean <input type="checkbox"/> Pressurized <input type="checkbox"/> Leaking gpm | | 2 |
| Secondary outlet | <input type="checkbox"/> Yes <input type="checkbox"/> No Type Diameter in. | | |
| Comments: | valve stem did not appear to have been operated recently | | |

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|--------------------|---|--|---------------|
| V. Spillway | <input type="checkbox"/> Earth <input type="checkbox"/> Rock <input type="checkbox"/> Concrete <input type="checkbox"/> Other | | Rating |
| Modifications | <input type="checkbox"/> None <input type="checkbox"/> Reduction in capacity <input type="checkbox"/> Feature not on design | | |
| Approach Channel | <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Trees/brush <input checked="" type="checkbox"/> debris <input type="checkbox"/> erosion | | 2 |
| Control Section | Width Depth <input type="checkbox"/> Concrete <input type="checkbox"/> Rock <input type="checkbox"/> Soil <input type="checkbox"/> Culvert <input type="checkbox"/> Unstable | | |
| Flashboards/Gate | <input type="checkbox"/> None <input type="checkbox"/> In place <input type="checkbox"/> operational <input type="checkbox"/> deteriorated | | |
| Discharge Channel | <input checked="" type="checkbox"/> Clear <input checked="" type="checkbox"/> Trees/brush <input type="checkbox"/> leakage <input type="checkbox"/> headcutting (feet approaching control section, depth feet.) | | 3 |
| Stilling basin | <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Functional <input type="checkbox"/> Minor Erosion <input type="checkbox"/> Severe Erosion/Undercutting | | |
| Aux. Spillway | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (use comments below) | | |
| Comments: | | | |

| | | | |
|--------------------------------|--|--|---------------|
| VI. Access and Security | | | Rating |
| Vehicle access | <input type="checkbox"/> Public road <input checked="" type="checkbox"/> all weather road <input type="checkbox"/> dirt road <input type="checkbox"/> cross country | | 3 |
| Fencing, signage | <input checked="" type="checkbox"/> Remote <input type="checkbox"/> Gate <input type="checkbox"/> Secure Fence <input type="checkbox"/> Camera <input type="checkbox"/> Uncontrolled | | 3 |
| New Structure below dam | Dwelling ft Paved public road ft Other sig building ft | | |
| Emergency Action Plan | <input type="checkbox"/> Not required <input type="checkbox"/> Completed at dam (dated) <input type="checkbox"/> None | | |
| Comments: | | | |

Instrumentation data reviewed: ☒ N/A ☐ Yes ☐ No

Other: